

PERFORMANCE

## **EcoPro HD Anti-Wear Hydraulic Oil**

When the project calls for a *biodegradable* hydraulic fluid, SWEPCO 737 EcoPro Heavy Duty Anti-Wear Hydraulic Oil delivers reliable performance superior to conventional biodegradable **and** many petroleum-based fluids in areas such as service life, high temperature resistance, lubricity, low temperature fluidity and wear control. SWEPCO's proprietary blend of ester base stocks and advanced eco-friendly chemistry provide optimum protection for hydraulic systems that must be operated in ecologically sensitive environments, including marine, agriculture, wildlife, forestry, landscaping, drilling, dredging and many other applications where biodegradability is desired or required.



### **KEY BENEFITS**

- Rapidly biodegradability -- >70% in 7 days
- Does not produce rainbow sheen
- Excellent extreme pressure performance with 500 kg weld load
- Specifically formulated for improved high temperature resistance, long life service and superior wear control
- Anti-wear additive prevents scuffing & rubbing wear
- High VI natural esters with superior oxidative, thermal & hydrolytic stability
- Excellent low temperature flowability -- won't clog filters or inhibit lubrication -- good down to <-36°C
- Superior resistance to foam, rust & corrosion
- Exceeds performance requirements of major industry & OEM specifications, including the Caterpillar BF-2 biodegradable fluid specification

***Superior performance & bio-degradability in one fluid ...***



**CONSTRUCTION**



**AGRICULTURE**



**DRILLING/DREDGING**



**MARINE**

*Enjoy superior performance in a biodegradable hydraulic fluid with SWEPCO 737.*

Feature	Benefit
<b>Biodegradability</b>	<ul style="list-style-type: none"> <li>• Readily biodegradable base stocks insure minimum impact on environment in the event of spill or leakage</li> <li>• Minimizes risk of environmental clean-up exposure and fines</li> <li>• Minimizes cost of clean-up in the event of a spill</li> <li>• Reduces cost of normal waste oil disposal</li> </ul>
<b>Natural Ester Base</b>	<ul style="list-style-type: none"> <li>• Insures uniform viscosity over a wide temperature range</li> <li>• Superior thermal stability prevents breakdown</li> <li>• Lubricity superior to many petroleum based lubricants</li> </ul>
<b>Extreme Pressure Additive</b>	<ul style="list-style-type: none"> <li>• Environmentally friendly extreme pressure additive provides heavy duty service</li> <li>• 4-Ball weld load tests demonstrate superior performance in extreme pressure</li> </ul>
<b>Anti-Wear Additive</b>	<ul style="list-style-type: none"> <li>• Ashless anti-wear chemistry &amp; natural ester base lubricity provide excellent protection from rubbing and scuffing wear</li> <li>• 4-Ball weld load tests demonstrate superior performance in extreme pressure</li> </ul>
<b>Anti-Oxidant Additive</b>	<ul style="list-style-type: none"> <li>• Lengthens drain cycles and reduces disposal costs</li> <li>• Helps prevent sludge, varnish and carbon deposits that can impact performance</li> <li>• Retains excellent hydraulic qualities to insure proper response</li> </ul>
<b>Hydrolytic Stability</b>	<ul style="list-style-type: none"> <li>• Natural ester base resists breaking down in presence of heat and moisture better than synthetic esters</li> <li>• Won't raise acidity levels to attack components and initiate rust</li> </ul>
<b>Rust and Corrosion Performance</b>	<ul style="list-style-type: none"> <li>• Bonds to metal surfaces to keep moisture and acids from penetrating and attacking</li> <li>• Prevents formation of rust particles</li> </ul>
<b>Anti-Foam Performance</b>	<ul style="list-style-type: none"> <li>• Can lower operating temperatures by dispersing foam and releasing trapped heat</li> <li>• Helps eliminate power surges and blown hoses</li> </ul>
<b>Pour Point Performance</b>	<ul style="list-style-type: none"> <li>• Superior low temperature fluidity and reduced start-up wear</li> </ul>
<b>Seal &amp; Finish Compatibility</b>	<ul style="list-style-type: none"> <li>• More friendly to seals than synthetic esters</li> <li>• Compatible with typical equipment paints, coatings and varnishes</li> </ul>

## Typical Physical Properties

ISO.....32.....46.....68  
Flash Point, °F, ASTM D-92, Min .....>450.....>450.....>450  
Specific Gravity, 60°F, ASTM D-1122...0.9305...0.92...0.935  
Viscosity @ 40°C, cSt, ASTM D-445.....34.11...48.2...73.43  
Viscosity @ 100°C, cSt, ASTM D-445.....7.18...9.83...13.03  
Viscosity Index, ASTM D-2270.....181.....207.....180  
Pour Point, °C, ASTM D-97.....-40.....-36.....-31  
Dielectric Strength, volts, ASTM D-877  
.....>34000.....>34000.....>34000  
Color.....Blue...Light Blue...Blue

## Biodegradability


CEC-L-33-T82, 7 days, % .....>70  
ASTM D5864, Modified Sturm OECD 301B  
(nearly identical to the circa 1982 EPA 560/6-82-003  
CO<sub>2</sub> Conversion Test), % .....>60

## Meets or Exceeds the Performance Requirements of These Specifications:

- Caterpillar BF-2 Biodegradable Fluid
- Cincinnati Machine P-68, P-69, P-70
- U.S. Steel 127, 136
- GE Turbine Specification GEK 28143A
- DIN 51506, VDL Performance
- DIN 51524 Parts I & II

## Typical Performance Properties

Foam, ASTM D-892, Sequence I, II, III ..... 0/0/0  
Copper Corrosion, ASTM D-130, 3 hours @ 100°C ..... 1b  
Hydrolytic stability, ASTM D-2619, Copper loss / appearance/ NNA ..... 0/1b/0  
Rust, ASTM D-665 A (Distilled Water) ..... Pass  
Rust, ASTM D-665 B (Synthetic Sea Water) ..... Pass  
Demulsibility, ASTM D-1401, oil / water / emulsion (minutes) ..... 40-40-0 (15)  
Four Ball Wear, ASTM D-4172, 1 hr., 167°F, 1800 rpm, 40 kg, scar mm. .... 0.40  
Four Ball Weld Load, kg ..... 500  
Hydraulic Pump Test, ASTM D-2282, mg. wt. loss, ring and vanes ..... 3.4  
FZG Wear Test, Fail Stage DIN 51354 ..... 14+  
Vickers Pump Test (35VQ25 & V-104C) ..... Pass  
Dennison (T-5D) ..... Pass  
Oxidative Stability, ASTM D-2272, RBOT, min. to 25 psi loss ..... 180  
Static Oxidation Test, 168 hrs. @ 150°C, condition of beaker ..... clean  
Maximum Recommended Operating Temperature  
Intermittent, °F (°C) ..... 200 (93)  
Continuous, °F (°C) ..... 180 (82)  
Maximum Recommended Oil Pressure  
Intermittent, psi ..... 9,000  
Continuous, psi ..... 8,000



**A Product of SPX Technology™.**

... the cutting edge performance SWPECO Customers have come to expect.



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